

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP 2004/012340

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl¹ H0185/343, H0185/183, H01L33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl¹ H0185/00-5/50, H01L33/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Japanese Utility Model Gazette 1922-1996, Japanese Publication of Unexamined Utility Model Applications 1971-2004, Japanese Registered Utility Model Gazette 1994-2004, Japanese Gazette Containing the Utility Model 1996-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

JICST, Elsevier, IEEE/IEE Electronic Library

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2002-43695 A (SHARP CO., LTD.) 2002.02.08, [0012] - [0013] (No family document)	1-4, 6-10
Y	JP 2003-197969 A (MITSUBISHI DENSEN INDUSTRIES CO., LTD.) 2003.07.11, [0025] (No family document)	1, 4
Y	JP 2003-101081 A (NICHIA CHEMICAL INDUSTRIES CO., LTD.) 2003.04.04, [0046] & JP 10-190053 A	1, 4
Y	JP 11-46038 A (NICHIA CHEMICAL INDUSTRIES LTD.) 1999.02.16, [0015], [0039] (No family document)	6-7
Y	US 6100586 A (Chen et al.) 2000.08.08, Lines 64, Column 3 to Lines 22, Column 4, FIG.1 & EP 880181 A2 & EP 880181 A3 & JP 11-040887 A	6-7



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13.10.2004

Date of mailing of the international search report

02.11.2004

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Journal of Crystal Growth, Volume 124, Issues 1-4 , 1 November 1992, Pages 763-771, especially Page 768	6-7
Y	Journal of Crystal Growth, Volume 170, Issues 1-4 , 1 January 1997, Pages 349-352, especially Page 351	8-9
Y	US 5578839 A (Nakamura et al.) 1996.11.26, Example 12, 14, 18 and 20 & US 5734182 A & US 5747832 A & US 5880486 A & US 6078063 A & US 6215133 B1 & US 6469323 B1 & US 2003/006424 A1 & US 2003/216011 A1 & DE 69319854 C & EP 599224 A1 & EP 844675 A3 & KR 9707135 B1 & JP 06-209120 A & JP 06-260680 A & JP 06-260681 A & JP 06-260682 A & JP 06-260683 A	10
A	JP 11-16812 A (TOYODA GOSEI CO., LTD.) 1999.01.29, [0015] (No family document)	1,5
A	JP 2003-229645 A (NIHON DENKI CO., LTD.) 2003.08.15, [0044] and FIG.11 & WO 2003/065526 A1	1,5
A	JP 2002-16284 A (TOSHIBA CO., LTD.) 2002.01.18, [0020], [0036] and [0042] (No family document)	1,4
PY	JP 2003-234545 A (SANYO DENKI CO., LTD.) 2003.08.22, [0113]-[0117] and FIG.34-36 (No family document)	1,5